



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,767	02/24/2004	Yukihito Ichikawa	118838	8334
25944	7590	12/07/2005	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			XU, LING X	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 12/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/784,767

Applicant(s)

ICHIKAWA, YUKIHITO

Examiner

Ling X. Xu

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-16 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4/21/2004
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION*****Election/Restrictions***

1. Applicant's election with traverse of Group I, claims 1-16 in the reply filed on 10/14/2005 is acknowledged. The traversal is on the ground(s) that the subject matter of all claims is sufficiently related that a thorough search for the subject matter of any one Group of claims would encompass a search for the subject matter of the remaining claims and therefore the search and examination of the entire application could be made without serious burden. This is not found persuasive because, as stated in the prior Office action, inventions I and II are related as apparatus and product made. A search of the product claimed may overlap the search of the apparatus. However, a search of the product claimed does not include all the areas that required for the apparatus. Therefore, additional search is required for the apparatus. A serious burden does exist. In addition, these two Groups of claims are classified in different classes, which may be directed to very different subject matters. These classes are usually examined by different groups of examiners with different expertise. Therefore, in order to ensure the quality of the search and examination, these Groups of claims should be searched and examined separately by examiners with different expertise.

The requirement is still deemed proper and is therefore made FINAL.

***Drawings***

2. Figures 2(a), 2(b), 5, 6(a), 6(b), 14 (a) and 14(b) should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Art Unit: 1775

Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 13, it is unclear if the "at least two kinds of cells different each other" is the result of "changing the intervals of the partition walls in the x and/or y axis direction." Similar indefinite language is also used in claim 2.

In claim 2, it is unclear if the "a unit" is referred to the cell of the honeycomb structure.

***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not

Art Unit: 1775

identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-3 and 12-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2-6 and 8-10 of copending Application No. 10/778,051. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in the copending application recite a honeycomb filter comprising a large number of through channels formed in the axial direction and partitioned by porous partition walls, wherein specified through channels are plugged at one end face at same side out of two end faces.

The claims of the copending application also recite that the honeycomb has through channels with a relatively large frontal area and through channels with a relatively small frontal area, and wherein all the through channels with a relatively large frontal area are plugged at one end face at same side out of two end faces.

Accordingly, the claims in the copending application recited that there are at least two different size of through channels ("cells"), one with a relatively large frontal area

Art Unit: 1775

and one with relatively small frontal area, as a result, the interval of the partition walls between the cells would also be different.

The claims of copending application further recite that a catalyst is carried on surface of the partition wall and/or pores in side the partition wall.

This is a provisional obviousness-type double patenting rejection.

5. Claims 5-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 2-6 and 8-10 of copending Application No. 10/778,051 and further in view of Vance et al. (US 2002/0175451).

As stated above, claims 2-6 and 8-10 in the copending application recite the same honeycomb filter as recited in claims 1-3 in the present application.

The claims in the copending application does not specify the porosity of the partition wall as recited in claims 5-6, also does not specify that the honeycomb is made of the specific ceramic and/or metal material as recited in claims 7-11.

Vance teaches that the ceramic honeycomb body may be any useful ceramic that has sufficient porosity and strength to perform as a wall-flow filter. Examples of useful ceramics include silicon carbide, cordierite, mullite and other same materials as recited in claim 11 (page 2, embodiment [0029]). The porosity of the ceramic honeycomb structure is from about 30-80% (page 2, embodiment [0030]).

Therefore, it would have been obvious to one of ordinary skill in the art to made and use the ceramic honeycomb structure as claimed in the copending application with ceramic materials such as silicon carbide, cordierite or mullite with porosity of about 30-80% as taught by Vance in order to provide a ceramic honeycomb structure with

Art Unit: 1775

sufficient porosity and mechanical strength to perform as a filter to collect and remove fine particulates.

This is a provisional obviousness-type double patenting rejection.

6. Claims 1-3, 12-13 and 15-16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12, 15-16 and 19-21 of copending Application No. 10/475,331. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in the copending application recite a honeycomb filter comprising a large number of through channels formed in the axial direction and partitioned by porous partition walls, wherein the plurality of partition walls having different thicknesses in a particular portion of the honeycomb structure. Since the thickness of the partition walls are different, the intervals of the partition walls are also different and, as a result, the sizes of the cells or through channels would also be different, e.g. the thicker the interval of the partition walls, the smaller the size of the cells.

The claims also recites that the plurality of partition walls having a catalyst component loaded thereon, see claim 19 of the copending application, and the through channels are plugged alternately at each end face of the honeycomb structure, see claim 20 of the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Art Unit: 1775

7. Claims 5-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12, 15-16 and 19-21 of copending Application No. 10/475,331 in view of Vance et al. (US 2002/0175451).

As stated above, claims 1-12, 15-16 and 19-21 in the copending application recite the same honeycomb filter as recited in claims 1-3 in the present application.

The claims in the copending application does not specify the porosity of the partition wall as recited in claims 5-6, also does not specify that the honeycomb is made of the specific ceramic and/or metal material as recited in claims 7-11.

Vance teaches that the ceramic honeycomb body may be any useful ceramic that has sufficient porosity and strength to perform as a wall-flow filter. Examples of useful ceramics include silicon carbide, cordierite, mullite and other same materials as recited in claim 11 (page 2, embodiment [0029]). The porosity of the ceramic honeycomb structure is from about 30-80% (page 2, embodiment [0030]).

Therefore, it would have been obvious to one of ordinary skill in the art to make and use the ceramic honeycomb structure as claimed in the copending application with ceramic materials such as silicon carbide, cordierite or mullite with porosity of about 30-80% as taught by Vance in order to provide a ceramic honeycomb structure with sufficient porosity and mechanical strength to perform as a filter to collect and remove fine particulates.

This is a provisional obviousness-type double patenting rejection.



*Claim Rejections - 35 USC § 102*

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 7-8, 13 and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Oyobe et al (US 4,519,820).

With respect to claims 1,13 and 16, Oyobe discloses a filter apparatus for purifying exhaust gases comprising a honeycomb structure having a plurality of cells defined by porous partition walls (abstract).

Oyobe also discloses that the alternate cells of the honeycomb structure are provided respectively with upstream plugs and downstream plugs (abstract). Fig. 10(a) of Oyobe (also col. 5, lines 40-50) shows that the cross-section pattern of the honeycomb structure having a grille shape of which gratings cross in x and y axis directions and there are at least two types of cells that are different from each other in the cross-sectional areas. The intervals of the partition walls in the x and /or y-axis direction are also different.

With respect to claim 2, Oyobe discloses that there are repetition patterns of different sizes of cells as a result of the different intervals of the partition walls in the cross-sectional view of the honeycomb structure (see Fig. 10(a) and col. 5, lines 40-50).

Art Unit: 1775

With respect to claim 3, Fig.10 (a) of Oyobe shows that the alternate cells of the honeycomb structure provided respectively with upstream plugs and downstream plugs in a checkerboard pattern (also see abstract).

With respect to claims 7-8, Oyobe discloses that the honeycomb structure is made of ceramic (col. 3, lines 30-40).

With respect to claim 14, Oyobe discloses that the cells having largest cross-sectional area perpendicular to fluid flow direction are open without being plugged at an end face on an inlet port side of the fluid, see Figs. 10(a) and (b).

With respect to claim 15, Oyobe discloses that the end face of the cells that are open on an inlet port side of the fluid is equal to that of on an outlet port side of the fluid.

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 5-13 and 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Abe et al. (US 2004/0131512).

With respect to claims 1-3, 13 and 15-16, Abe discloses a honeycomb filter comprising a large number of through channels formed in the axial direction and partitioned by porous partition walls, wherein the cross-section pattern of the partition walls having a grille shape of which gratings cross in x axis and y axis directions, and

Art Unit: 1775

there are at least two kinds of cells different from each other in their cross-sectional areas and the intervals of the partition walls are also different see Figs. 2-3.

Abe also discloses that the partition walls having filter capabilities and the plurality of the through channels are plugged alternately at each end face of the honeycomb structure (page 2, embodiment [0030]).

With respect to claims 5-11, Abe discloses that the honeycomb structure is made of ceramic such as cordierite and having a porosity of 5-80% (page 2, embodiment [0020] and [0029]).

With respect to claim 12, Abe discloses that the plurality of partition walls having a catalyst component loaded thereon (page 2, embodiment [0030]).

10. Claims 1-3, 5-13 and 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Ichikawa et al. (US 2004/0123573).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

With respect to claims 1-3, 13 and 15-16, Ichikawa discloses a honeycomb filter comprising a large number of through channels formed in the axial direction and partitioned by porous partition walls, wherein the plurality of partition walls having different thicknesses in a particular portion of the honeycomb structure (page 6,

Art Unit: 1775

embodiment [0082]). Since the thickness of the partition walls are different, the intervals of the partition walls are also different and, as a result, the sizes of the cells or through channels would also be different, e.g. the thicker the interval of the partition walls, the smaller the size of the cells, see Figs. 5-13.

Ichikawa also discloses that the plurality of the through channels is plugged alternately at each end face of the honeycomb structure (see claim 20).

With respect to claims 5-11, Ichikawa discloses that the honeycomb structure is made of ceramic such as cordierite and having a porosity of 40% (page 13, Example 1 and page 6, embodiment [0089]).

With respect to claim 12, Ichikawa discloses that the plurality of partition walls having a catalyst component loaded thereon (see claim 19).

### ***Claim Rejections - 35 USC § 103***

11. Claims 5-6 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oyobe, as applied to claims 1-3 and 7-8 above, and further in view of Vance et al. (US 2002/0175451).

As stated above, Oyobe discloses the same honeycomb structure as recited in claims 1-3 and 7-8.

Oyobe does not specify the porosity of the partition wall as recited in claims 5-6, also does not specify the specific ceramic and/or metal as recited in claim 11, and does not disclose that the partition walls are loaded with catalyst as recited in claim 12.

However, it is well known in the art that the honeycomb structure to have these features.

Vance teaches that the ceramic honeycomb body may be any useful ceramic that has sufficient porosity and strength to perform as a wall-flow filter. Examples of useful ceramics include silicon carbide, cordierite, mullite and other same materials as recited in claim 11 (page 2, embodiment [0029]). The porosity of the ceramic honeycomb structure is from about 30-80% (page 2, embodiment [0030]).

Vance also teaches that the ceramic honeycomb filter may have a catalyst to catalyze the combustion of soot particles or oxidation of carbon monoxide or nitrogen oxides. The catalyst is carried on or within at least one partition wall (page 2, embodiment [0034]).

Therefore, it would have been obvious to one of ordinary skill in the art to made and use the ceramic honeycomb structure of Oyobe with ceramic materials such as silicon carbide, cordierite or mullite with porosity of about 30-80% as taught by Vance in order to provide a ceramic honeycomb structure with sufficient porosity and mechanical strength to perform as a filter to collect and remove fine particulates. It would also have been obvious to one skilled in the art to have a catalyst loaded on or within the partition walls of Oyobe's honeycomb structure in order to catalyze the combustion of soot particles or oxidation of the carbon monoxide or nitrogen oxides, as taught by Vance.

#### ***Allowable Subject Matter***

12. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Art Unit: 1775

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling X. Xu whose telephone number is 571-272-1546.

The examiner can normally be reached on 8:00 - 4:30 Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah D. Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ling X. Xu  
Primary Examiner  
Art Unit 1775